U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Pyrgulopsis chupaderae*

COMMON NAME: Chupadera springsnail

LEAD REGION: Region 2

INFORMATION CURRENT AS OF: October 2005

STATUS/ACTION:

___ Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status
___ New candidate
_X_ Continuing candidate
___ Non-petitioned
_X_ Petitioned - Date petition received: November 20, 1985
_X_ 90-day positive - FR date: August 20, 1986
_X_ 12-month warranted but precluded - FR date: October 4, 1988
_ Did the petition requesting a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:
a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.
During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements; emergency listings; and essential litigation-related administrative and program management functions. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the 12 months, see the discussion of "Progress on Revising the Lists" in the current CNOR, which can be viewed on our Internet website (http://endangered.fws.gov/).
___ Listing priority change
Former LP: ___
New LP: ___
Date when the species first became a Candidate (as currently defined): 10/4/88

___ Candidate removal: Former LP:
___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or

continuance of candidate status.

___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

___ F – Range is no longer a U.S. territory.

___ I – Insufficient information exists on biological vulnerability and threats to support listing.

___ M – Taxon mistakenly included in past notice of review.

___ N – Taxon does not meet the Act's definition of "species."

___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Mollusca, Hydrobiidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE*:* New Mexico

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Socorro County, New Mexico

LAND OWNERSHIP: Private, 100 percent.

LEAD REGION CONTACT: Susan Jacobsen, 505-248-6641

LEAD FIELD OFFICE CONTACT: New Mexico Ecological Services Field Office, Marilyn Myers, 505-761-4754; Eric Hein 505-761-4735

BIOLOGICAL INFORMATION:

Species Description: The Chupadera spring snail is a small to medium-sized fresh water snail with an ovate to elongate shell (Taylor 1987). The biology of the Chupadera springsnail is largely unknown. Still, most freshwater gastropods are herbivores or detritivores that consume algae, bacteria, and decaying organic material, or that passively ingest small invertebrates while feeding. Respiration in hydrobiid snails is strictly aquatic via an internal gill with some oxygen absorption through the mantle (soft body). Hydrobiid snails are sexually dimorphic, and females are characteristically larger and live longer than males. Most of these snails reproduce several times during the breeding period (spring-fall) with varying degrees of replacement of generations. While longevity is variable, most prosobranch snails (snails that have gills and an operculum) live 9 to 15 months (Taylor 1987, Pennak 1989, Brown 1991).

Taxonomy: The Chupadera springsnail is a prosobranch snail of the freshwater family Hydrobiidae. Hydrobiid snails are distinguished by the presence of eyes on long antennae and a globular to narrowly conical shell (Taylor 1987). The Chupadera springsnail has a tan to brown ovoid shell, which is the most heavily pigmented of any in the genus *Pyrgulopsis* (Taylor 1987).

Habitat/Distribution: This aquatic species is endemic to Willow Spring on the Willow Spring Ranch (formerly Cienega Ranch) at the south end of the Chupadera Mountains in Socorro

County, New Mexico. The Chupadera springsnail has been documented only from two hillside groundwater discharges that flow through rhyolitic gravels containing sand, mud, and hydrophytic plants (Taylor 1987; New Mexico Department of Game and Fish 1988, 2002). The two localities are 0.25 miles from one another (New Mexico Department of Game and Fish 2002). The water temperature of Willow Spring ranges from 18 to 22°C (64 to 72°F) (Taylor 1987, Lang 1998). Other sites of potential occurrence have been surveyed, but no extant populations have been located (New Mexico Department of Game and Fish 2002).

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range. The survival and recovery of the Chupadera springsnail is considered to be contingent upon protection of the riparian corridor immediately adjacent to Willow Spring, and the availability of perennial, oxygenated flowing water within the species' thermal range (Lang 1998). The principal threats based upon direct observations of impacts at Willow Spring include: intensive livestock grazing leading to riparian habitat degradation, groundwater pumping, and springrun impoundment and dewatering (Lang 1998, New Mexico Department of Game and Fish 2002). For example, site inspections in 1998 and 1999 revealed significant grazing impacts at both occupied springhead habitats (the southern and northern spring), including efforts to repair and improve existing pump facilities (New Mexico Department of Game and Fish 2000). While springsnails were abundant in the southern springrun, intensive sampling efforts at the northern springrun yielded no springsnails (New Mexico Department of Game and Fish 2000). The wetland habitat along both springheads was heavily used by cattle and completely devoid of riparian vegetation. Lang (1998) reported that the Chupadera springsnail population at the most southern spring habitat is extant; repeated sampling efforts between 1995 and 1997 at the northern spring produced only a few individuals. As of the 1998 report by Lang, this spring was heavily impacted by cattle, was devoid of riparian vegetation, and the gravels and cobbles were covered with mud and manure. Benthic samples from this site contained large volumes of cattle manure (New Mexico Department of Game and Fish 2000). Livestock grazing in and near the springs can also have an impact on the quality of springsnail habitat. Livestock use can result in the degradation and contamination of isolated springs (U.S. Forest Service 2004). Livestock grazing can also directly impact springsnails through trampling, and contamination and degradation of springs.

The land containing Willow Spring was sold in 1999. The new property owners have consistently denied access to the spring to personnel from the state of New Mexico. Consequently, the persistence of the Chupadera springsnail and condition of its habitat has not been monitored in recent years (New Mexico Department of Game and Fish 2002). The imminent threats were based upon observations and include groundwater depletion, diversion and impoundment of surficial flow, loss of riparian vegetation, overgrazing of watershed, and water contamination from onsite gasoline powered pumps at capped wells (New Mexico Department of Game and Fish 1996, Lang 1998). For example, in 1998, water was diverted from an artesian springhead adjacent to (within 4 meters) the source water of Willow Spring (New Mexico Department of Game and Fish 2002).

A fire at Willow Spring was reported by New Mexico Department of Game and Fish personnel

in January 2002 (B. Lang, New Mexico Department of Game and Fish, pers. comm., 2002). Contact with the landowner regarding the fire's effects on the habitat or the species yielded little useful information, but confirmed that the vegetation around the wetlands was intentionally burned. Access to monitor the population was again denied. Therefore, it is unknown whether the fire affected the Chupadera springsnail population at Willow Spring, and if so, to what extent.

B. Overutilization for commercial, recreational, scientific, or educational purposes. Not known to be a factor in the decline of the Chupadera springsnail.

C. Disease or predation. Not known to be a factor in the decline of the Chupadera springsnail.

D. The inadequacy of existing regulatory mechanisms. Existing regulatory mechanisms are not sufficient to protect the Chupadera springsnail. New Mexico State law provides limited protection to the Chupadera springsnail. The species is listed as a New Mexico State endangered species, Group 2, which are those species "...whose prospects of survival or recruitment within the state are likely to become jeopardized in the near future" (New Mexico Department of Game and Fish 1988). This designation provides the protection under the New Mexico Wildlife Conservation Act of 1974 (i.e., State Endangered Species Act) (19 NMAC 33.6.8), but only prohibits direct take of these species, except under issuance of a scientific collecting permit. New Mexico State statutes do not address habitat protection, indirect effects, or other threats to these species. New Mexico State status as an endangered species only conveys protection from collection or intentional harm. However, there is no formal consultation process to address the habitat requirements of the species or how a proposed action may affect the needs of the species. Because most of the threats to these species are from effects to habitat, protecting individuals will not ensure their longterm protection. No permit has been issued to the current landowner for taking this taxon. The New Mexico Wildlife Conservation Act defines "take" or "taking" as harass, hunt, capture or kill any wildlife or attempt to do so (17 NMAC 17.2.38).

New Mexico Department of Game and Fish has the authority to consider and recommend actions to mitigate potential adverse effects to this species during its review of development proposals. As noted, New Mexico Department of Game and Fish's primary regulatory venue is under the New Mexico Wildlife Conservation Act. For these reasons, we conclude that there are no statutory requirements under New Mexico Department of Game and Fish's jurisdiction that serve as an effective regulatory mechanism for reducing or eliminating the threats (see Factor A) that may adversely affect the Chupadera springsnail.

E. Other natural or manmade factors affecting its continued existence. The geographically restricted distribution of the Chupadera springsnail and its near extirpation from the northern spring, one of its two known historical sites, increase the possibility that a human-caused or natural event could eliminate the species (New Mexico Department of Game and Fish 2002). Several biological traits of a population have been identified as putting a species at risk of extinction (McKinney 1997, O'Grady 2004). Some of these characteristics include having a localized range, limited mobility, and fragmented habitat (McKinney 1997, O'Grady 2004). The Chupadera springsnail has all of these characteristics. Therefore, randomly occurring events, such as floods, severe droughts, contamination events, or fires could result in the extirpation of

one or both populations. Reduced population numbers and localities may result in decreased genetic diversity and increases in vulnerability to extinction due to further randomly occurring events. For example, prolonged drought leading to diminishment or drying of thermal springs would have a negative impact on the springsnail. New Mexico has been in a drought since 1999. The length or severity of the current drought cycle is not known and the Southwest may be entering a period of prolonged drought (MaCabe et al. 2004). Drought impacts both surface and groundwater resources and can lead to diminished water quality and disturbed riparian habitats (Woodhouse and Overpeck 1998, MacRae et al. 2001). The springs do not have to dry out completely to have an adverse effect on populations of springsnails. Decreased spring flow could lead to a decrease in habitat availability, water temperature fluctuations, lower dissolved oxygen levels, and an increase in salinity (MacRae et al. 2001). Any of these factors, alone or in combination, could lead either to the reduction or extirpation of a population. Any perturbation, either natural (e.g., drought) or anthropogenic (e.g., water contamination), has the potential to eliminate many or all of the existing populations. Having a high number of individuals at a site provides no protection against extinction, because springsnails could easily be extirpated from a locality when a spring dries.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED: A conservation agreement has not been completed for the Chupadera springsnail. However, an adequate agreement could preclude the need to list the species. Because of the isolated nature of the population and its small size in geographic area, reducing impacts to the springsnails through a Candidate Conservation Agreement with Assurances (CCAA) could significantly improve their status and eliminate the need to list. We believe that a CCAA could accommodate the needs of the springsnails as well as the landowner. Although representatives from the state of New Mexico approached the landowner in January 2002 to discuss limited access to collect substrate and individuals for a captive propagation program and to allow limited monitoring, these efforts have not been successful. Moreover, the current landowner is not interested in developing a conservation agreement (B. Lang, New Mexico Department of Game and Fish, pers. comm., 2002). The state has continued its efforts to communicate with the landowner but access to the site has been consistently refused. Last contact with the landowner was in July 2005.

SUMMARY OF THREATS: This species is threatened due to the present or threatened destruction, modification, or curtailment of habitat and the inadequacy of existing regulatory mechanisms. These factors, coupled with the inability of land managers to participate in its management, has resulted in the magnitude of the threats to this species being high. There is an imminent threat to this species because either human-caused disturbance (e.g., grazing of cattle, water withdrawal, and fire) or natural disturbance (e.g., drought or fire) could result in extinction of this species in the near future.

For species that are being removed from candidate status:

___Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

LISTING PRIORITY:

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	**Imminent**	Monotypic genus	1
		Species	**2***
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: The extremely localized distribution of the snail, its occurrence only on private property, the lack of regulatory protection of its habitat, and the inability of land managers to participate in its management, indicate that the magnitude of threat to this species is high.

Imminence: Either human-caused disturbance (grazing of cattle, spring development, water withdrawal, fire) or natural disturbance (drought or fire) could eliminate this species. Grazing is occurring at the spring and New Mexico is in the midst of a drought. In addition, the land owner is not cooperative and to date has not been willing to engage in a process for developing a conservation agreement for the species. Therefore, there is an immediate threat to this species.

_X_ Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? Yes.

Is Emergency Listing Warranted? No. Although we are concerned about the status of the snail, the Service has not been able to gather information sufficient to support an emergency listing due to private landowner's restriction of all access to the springs. We will pursue cooperation with the landowner through our Partners for Fish and Wildlife Program, the Natural Resources Conservation Service, NMDGF, and explore the possibility of land purchase through The Nature Conservancy.

DESCRIPTION OF MONITORING: Due to denial of access, monitoring has not occurred since August 1999, when the property was sold to the current landowner.

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: New Mexico Department of Game and Fish

Indicate which State(s) did not provide any information or comments: NA

LITERATURE CITED

Brown. K. M. 1991. Mollusca:Gastropoda. Pp. 285-314, *In* J. H. Thorp and A. H. Covich, eds. Ecology and classification of North American freshwater invertebrates. Academic Press, New York, New York.

Lang, B. 1998. Status of aquatic mollusks of New Mexico. New Mexico Department of Game and Fish, Santa Fe, New Mexico. Report E-20-7.

MacRae, R.K., J.D. Lusk, and W.R. Radke. 2001. Investigation of the role of environmental contaminants upon ecological sentinel species and their habitats at Bitter Lake national Wildlife Refuge, New Mexico. Report prepared by the New Mexico Ecological Services field Office, Environmental Contaminants Program. Project ID 2N27 9620001A.

McCabe, G.J., M.A. Palecki, and J.L. Betancourt. 2004. Pacific and Atlantic ocean influences on multidecadal drought frequency in the United States. Proceedings of the National Academy of Sciences (www.pnas.org/cgi/doi/10.1073/pnas.0306738101).

McKinney, M.L. 1997. Extinction vulnerability and selectivity: combining ecological and paleontological views. Annual Review of Ecology and Systematics. 28:495-516.

New Mexico Department of Game and Fish. 1988. Handbook of Species Endangered in New Mexico. Santa Fe, New Mexico.

New Mexico Department of Game and Fish. 1996. Threatened and Endangered Species of New Mexico, 1996 Biennial Review and Recommendations. Santa Fe, New Mexico.

New Mexico Department of Game and Fish. 2000. BIOTA Information System of New Mexico: species account for the Chupadera pyrg (*Pyrgulopsis chupaderae*). Santa Fe, New Mexico.

New Mexico Department of Game and Fish. 2002. Status of aquatic mollusks of New Mexico. New Mexico Department of Game and Fish Completion Report for Federal Aid Grant E-20, July 15, 1996 to August 31, 2001, submitted to U.S. Fish and Wildlife Service, Albuquerque, New Mexico, USA.

O'Grady, J.J., D.H. Reed, B.W. Brook, and R. Frankham. 2004. What are the best correlates of predicted extinction risk? Biological conservation. 118:513-520.

Pennak, R. W. 1989. Freshwater invertebrates of the United States: Protozoa to Mollusca. John Wiley and Sons, New York, New York.

Taylor, D. W. 1987. Freshwater molluscs from New Mexico and vicinity. New Mexico Bureau

of Mines and Mineral Resources Bulletin 16. Socorro, New Mexico.

U.S. Forest Service. 2004. Biological assessment on eleven land and resource management plans, Forest Service, Southwestern Region, Albuquerque, New Mexico, USA.

Woodhouse, C.A. and J.T. Overpeck. 1998. 2000 years of drought variability in the central United States. Bulletin of the American Meteorological Society 79: 2693-2714.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: /s/ Rich McDonald 11/17/2005
Acting Regional Director, Fish and Wildlife Service Date

Concur: August 23, 2006
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Date of annual review: October 2005
Conducted by: Marilyn Myers/Eric Hein

Comments: